

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1.-12. (CANCELLED)

13. (Currently amended) ~~Method~~ A method for preparing a membrane to be assembled in a membrane electrode assembly, comprising ~~the step~~ steps of:

swelling an ion-conducting membrane ~~in~~ by subjecting to a liquid containing at least one solvent or to an atmosphere containing the vapor phase of at least one solvent by controlling the content of the at least one solvent in the ion conducting membrane;

after the swelling step, drying the ion-conducting membrane;
and

after the drying step, re-swelling the ion-conducting membrane by immersing the ion-conducting membrane in a solvent.

14. (currently amended) The method ~~Method~~ according to claim 13, ~~characterized in that~~ wherein the ion conducting membrane is a radiation grafted membrane.

15. (Currently amended) The method ~~Method~~ according to claim 14, ~~characterized in that~~ wherein the graft level is in the range of 5 to 50 mol%, ~~preferably 10 to 40 mol%.~~

16. (Currently amended) The method ~~Method~~ according to claim 14, ~~characterized in that~~ wherein the grafting solution

comprises a crosslinker monomer; the content of said crosslinker monomer is in the range of 5 to 25%, ~~preferably less than 20%~~, relative to styrene.

17. (Currently amended) The method ~~Method~~ according to claim 13, ~~characterized in that~~ wherein prior to the swelling step,

a) the ion conducting membrane is treated in a strong acid solution for a period in the range of 10 minutes to 120 minutes; and

b) rinsing the ~~[[so-]]~~treated ion conducting membrane with water, ~~preferably~~ until the rinse water is neutral.

18. (Currently amended) The method ~~Method~~ according to claim 13, ~~characterized in that~~ wherein the ion conducting membrane is coated, ~~preferably impregnated~~, with ~~[[a]]~~ an ionically conducting polymeric phase.

19. (Currently amended) The method ~~Method~~ according to claim 15, ~~characterized in that~~ wherein the grafting solution comprises a crosslinker monomer; and

the content of said crosslinker monomer is in the range of 5 to 25%, ~~preferably less than 20%~~, relative to styrene.

20. (Currently amended) The method ~~Method~~ according to claim 14, ~~characterized in that~~ wherein prior to the swelling step,

a) the ion conducting membrane is treated in a strong acid solution for a period in the range of 10 minutes to 120 minutes; and

b) rinsing the ~~[[so-]]~~treated ion conducting membrane with water, ~~preferably~~ until the rinse water is neutral.

21. (Currently amended) A method ~~Method~~ for manufacturing a membrane electrode assembly using ~~[[a]]~~ an ion conducting membrane, ~~i.e. a ion conducting membrane prepared according to any of the preceding claims,~~ comprising the steps of:

- a) providing ~~[[a]]~~ an ion conducting membrane in a pre-swollen state;
 - b) drying the ion-conducting membrane;
 - c) after the drying step, re-swelling the ion-conducting membrane by immersing the ion-conducting membrane in a solvent;
- coating of the ion conducting membrane on both sides with an electrode layer to form a sandwich; and
- c) hot-pressing the sandwich to form an ion conducting ~~bonding of the afore-mentioned layers of the sandwich~~ between the ion-conducting membrane and the electrode layers.

22. (Currently amended) The method ~~Method~~ according to claim 21, ~~characterized in that~~ wherein a catalytic active layer is disposed between the electrode layer and the ion conducting membrane on both sides of the ion conducting membrane.

23. (Currently amended) The method ~~Method~~ according to claim 21, ~~characterized in that~~ wherein as the electrode layer ~~one of the group consisting~~ comprises one of a carbon cloth, carbon paper and a carbon felt ~~is used, preferably applied in form of a hydrophilic liquid, such as a polar and hydrogen-bonding solvent.~~

24. (previously presented) The method ~~Method~~ according to claim 21, ~~characterized in that~~ wherein the hot-pressing condition are selected from at least one of the following conditions:

- a) temperature in the range of 70 to 150 C, ~~preferably in the range of 90 to 120 C;~~

- b) pressure in the range of 2 to 30 MPa, ~~preferably 5 to 18 MPa~~; and
- c) duration time of hot-pressing treatment in the range of 15 to 400 seconds, ~~preferably 60 to 240 seconds~~.

25. (currently amended) The method ~~Method~~ according to claim 21, ~~characterized in that~~ wherein the catalytic active layer comprises at least one selected from the group containing platinum, ruthenium, rhodium, rhenium, nickel, rare earth and transition metals and compounds thereof.

26. (currently amended) A membrane electrode assembly, manufactured according to claim 21, comprising a hot pressed sandwich comprising: [[an]]

a first electrode layer[[,]];

a second electrode layer; and

an [[a]] ion conducting membrane disposed between the first and second electrode layers; and again an electrode layer,
wherein thereby using the ion conducting membrane in [[its]] a pre-swollen status prior to the hot-pressing.

27. (Currently amended) The [[A]] membrane electrode assembly according to claim 26, ~~characterized in that~~ wherein the depth of the ion conducting membrane is in the range of 5 to 250 μ m [[pm]], ~~preferably 20 to 200 μ m~~.

28. (Currently amended) Method according to claim 22, ~~characterized in that~~ wherein the ~~as~~ electrode layer comprises one of ~~the group consisting of a carbon cloth, carbon paper and a carbon felt is used, preferably applied in form of a hydrophilic liquid, such as a polar and hydrogen bonding solvent.~~

29.(new) A method according to claim 14, wherein the graft level is in the range of 10 to 40 mol%.

29.(new) A method according to claim 14, wherein the grafting solution comprises a crosslinker monomer, and
the content of said crosslinker monomer is in the range of less than 20% relative to styrene.

30. (new) A method according to claim 13, wherein the ion conducting membrane is impregnated with an ionically conducting polymeric phase.

31. (new) A method according to claim 15, wherein the grafting solution comprises a crosslinker monomer, and
the content of said crosslinker monomer is in less than 20% relative to styrene.

32. (new) A method according to claim 21, wherein the ion conducting membrane is a polar and hydrogen-bonding solvent.

33. (new) A method according to claim 21, wherein the hot-pressing conditions are selected from at least one of the following conditions:

- a) temperature in the range of 90 to 120 °C;
- b) pressure in the range of 5 to 18 MPa; and
- c) duration time of the hot-pressing treatment in the range of 60 to 240 seconds.

34. (new) A membrane electrode assembly according to claim 26, wherein a depth of the ion conducting membrane is in the range of 20 to 200 μm .

35. (new) A method according to claim 22, wherein the electrode layer is a polar and hydrogen-bonding solvent.